

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

Notice of Inquiry)	
Use of Distributed Generation)	
)	

D.T.E. 02-38

REPLY COMMENTS OF NSTAR ELECTRIC

I. INTRODUCTION

On June 13, 2002, the Department of Telecommunications and Energy (“Department”) issued a Notice of Inquiry (the “NOI”) regarding the technical, economic and regulatory issues relating to the installation and use of distributed generation. Distributed Generation Investigation, D.T.E. 02-38 (2002). In response to the NOI, approximately 30 entities, including electric distribution companies, marketers, equipment manufacturers, government agencies, trade- and policy-based organizations and consumers, filed initial comments on a number of issues relating to distributive generation. As described below, and consistent with the questions raised in the NOI, these comments address three general issues: (1) the development of interconnection standards for the installation of distributed generation; (2) the establishment of standby service rates for distributed generators; and (3) the potential to incorporate distributed generation into distribution-system planning activities.

NSTAR Electric (or the “Company”)¹ submits these reply comments in accordance with the procedural schedule established by the Department for this proceeding. In view of the large number of comments received and the opportunity to participate in additional proceedings in this

¹ NSTAR Electric is composed of Boston Edison Company, Commonwealth Electric Company and Cambridge Electric Light Company.

case, the Company will not endeavor to respond in specificity to all of the initial comments filed. Instead, in these reply comments, NSTAR Electric responds to the following three issues: (1) the initiation of a collaborative process, as proposed by the Massachusetts Technology Collaborative Renewable Energy Trust (“MTC”), to resolve technical and policy issues concerning distributed generation; (2) the establishment of standby rates to serve distributed-generation applications; and (3) the incorporation and effect of distributed generation on resource planning. The Company looks forward to participating in subsequent proceedings to provide additional detail and to respond to Department questions.

II. DISCUSSION

A. The Company Supports the Implementation of a Collaborative Process To Develop Uniform Interconnection Standards.

In this proceeding, the MTC has proposed that the Department initiate a collaborative process to resolve technical and policy issues regarding the implementation of distributed generation. The objective of the collaborative, according to the MTC, would be to “identify and build consensus on Department actions and distribution company policies” (MTC Initial Comments at 5).

In general, NSTAR Electric supports the use of a collaborative process to discuss and to resolve emerging industry issues. In the Company’s experience, the collaborative approach to resolving issues relating to the development and implementation of initiatives in the utility industry is most productive when: (1) the issues targeted for resolution are technical in nature; and (2) the results of the collaborative process can be generally applied to all utility companies.² Of the three issues that the Department has addressed in this proceeding (i.e., interconnection

² As noted in its Initial Comments, NSTAR Electric has been working with National Grid, Unitil and Western Massachusetts Electric Company to develop a uniform technical interconnection standard for Massachusetts operators of distributed generation (NSTAR Initial Comments at 2).

standards, standby rates and system planning), NSTAR Electric believes that a collaborative process would be productive only in developing uniform interconnection standards that could be adopted by all electric distribution companies in the Commonwealth.

The large majority of comments supported the establishment of uniform interconnection standards.³ The comments differ only as to: (1) how the standards should be modeled (e.g., whether they should be based on standards effective in other states or on standards developed by the IEEE); and (2) how the standards should be designed to address the various sizes and types of distributed generation technologies. Since the issues involved in the development of uniform interconnection standards are technical in nature and the interconnection standards that are ultimately developed will be applicable to all electric companies, the implementation of a collaborative process could be beneficial. As with the establishment of standardized terms and conditions for the gas industry, which were developed by the Massachusetts Gas Unbundling Collaborative as part of D.T.E. 98-32, the MTC Collaborative could develop model, uniform interconnection standards for Department review. Only if consensus cannot be reached by the collaborative participants on particular issues would the Department be requested to resolve any disputes. The standardized interconnection agreements would be applicable to all distribution companies, absent a demonstration that individual circumstances justified a deviation.

Accordingly, NSTAR Electric supports MTC's proposal to initiate a collaborative process for the development of uniform interconnection standards.

Conversely, the establishment of fair and reasonable standby rates will require a policy determination by the Department. Specifically, although many commenters recite cost-causation

³ Although some commenters offered criticisms of the interconnection and safety requirements adopted by NSTAR Electric and other distribution companies (see, e.g., Aegis Energy Service, Inc. Initial Comments at 2), the Company's standards are intended to protect worker safety, customer safety and enhance system

as a governing principle for the design of standby rates, there are fundamental disagreements among the commenters with respect to the structure and application of any standby rate that would result from this proceeding (see, e.g., Gas Technology Institute Initial Comments at 3; National Energy Marketers Association Initial Comments at 3; Trigen Initial Comments at 2; Western Massachusetts Electric Company Initial Comments at 4-8; Division of Energy Resources Initial Comments at 5-6).⁴ Therefore, the Department will need to make policy determinations on issues involving cost responsibility, rate design and the utilities' legal obligation to provide least-cost service to customers before such rates can be established. These policy issues are not likely to be effectively resolved within a collaborative process.

Similarly, for the reasons discussed in section II.C below, the Company does not view there to be issues involved in system planning that would be susceptible to resolution through a collaborative process. Accordingly, the Company recommends that the Department support the use of a collaborative process to result in the establishment of uniform interconnection standards and reserve other issues involving necessary policy determinations for resolution by the Department.

B. The Department Should Make a Policy Determination as to the Appropriate Structure for Standby Rates.

In this proceeding, the Department solicited comment on the appropriate structure of standby rates. On the surface, commenters generally “agree” that distribution standby rates should be based upon the cost of providing distribution service. Where commenters differed, however, was in relation to the design and implementation of the rate. In that regard, comments

reliability. The Company's standards comply with the requirements of ANSI and Institute of Electrical and Electronic Engineers (the “IEEE”).

⁴ A more detailed description of the issues raised with respect to standby rates is set forth in section II.B, below.

fall into two categories: (1) whether standby rates should be based on specific customer usage; or (2) whether standby rates should be based on some form of a monthly contract demand charge and/or internal load calculations. A number of commenters suggest that a menu of distribution standby services be offered based upon the firmness of service requested and priced commensurately (e.g., instantaneous backup, scheduled backup, and recallable non-firm backup) (see, e.g., AES New Energy, Inc. Initial Comments at 2; Cape Light Compact Initial Comments at 4). NSTAR Electric agrees in concept with such general standby service recommendations.

As discussed below, there are several issues to consider in developing a cost-based standby rate. From an overall perspective, however, NSTAR Electric advocates that the Department adhere to its principles of cost responsibility in determining the appropriate structure for these rates. Cost-causation principles have historically guided the Department's ratemaking policies. The Berkshire Gas Company, D.T.E. 01-56, at 134-135 (2002); Boston Edison Company, D.P.U. 1720, at 112-113 (1984). For firm backup service, the customer must be responsible for paying the costs incurred by the distribution company to construct, operate and maintain the distribution and transmission facilities that are needed to serve the customer's load.⁵ Rates designed in this manner provide customers with the correct price signals, encourage economic efficiency and protect against cross-subsidization. The details on designing such rates must be considered on an individual distribution-company basis and must take into account such issues as the size of the generation, new vs. existing facilities, consistency with the design of other rates, etc.

⁵ For non-firm service, the costs incurred (and therefore the rates charged) would reflect the fact that the distribution company is not required to have facilities in place to meet that customer's full requirements at any time.

Commenters suggest two basic approaches to the design of standby rates: (a) contract demand (see, e.g., Western Massachusetts Electric Company Initial Comments at 4-8; Massachusetts Electric Company Initial Comments at 9-10; Fitchburg Gas and Electric Light Company Initial Comments at 5); and (b) “as used” charges (see, e.g., Gas Technology Institute Initial Comments at 3; National Energy Marketers Association Initial Comments at 3; Trigen Initial Comments at 2). Contract-demand-based rate design requires the standby service customer to designate the level of standby service to be provided from the distribution system. The level of the contract demand could vary by season to reflect seasonality in the customer’s internal load requirements. This rate design reflects the fact that the distribution utility must design its distribution system⁶ to be capable of delivering power to the standby customer instantaneously upon the loss of the customer’s self-generation. Since the customer’s loss of generation cannot be predicted with regard to time of occurrence, length of outage or frequency of occurrence, the utility must build into its distribution system with the necessary capacity to satisfy the customer’s total standby load requirement. Fair allocation of costs requires that the standby customer pay for the cost of such capacity regardless of the actual taking of backup power. Rates designed in this manner ensure that customers pay the costs incurred by the distribution company for the facilities needed to serve the customer.⁷

Another way to design standby rates to be fully compensatory would be to bill distributed generation customers for standby service according to the sum of: (1) the customer’s self-generation; and (2) the usage taken from the distribution system. The effect of this rate design

⁶ Similar rate-structure principles apply to transmission facilities and the recovery of associated costs.

⁷ It should be noted that contract demand customers would have the option of contracting for less than their full load requirements if, for example, they had multiple generators on site (and desired to rely on the diversity of those units). However, the distribution company would have no obligation to serve the customer on a firm basis beyond the contracted demand level.

would be to charge standby customers for distribution service based upon their total internal load requirements. This rate design simulates the charges a customer would pay if such customer had no self-generation. Since the cost to serve the standby customer is the same as that for a non-self-generating customer as discussed above, this rate design would generally recover the cost of providing distribution service to the standby customer.

“As used” rate design has been proposed by some commenters in two different forms. The first requires the standby service customers to pay the distribution backup charges only when used and only to the extent used on such occasions. Since the backup service is intended to be used only when the customer’s normally operating self-generation is unexpectedly out-of-service, the frequency and level of billing units recorded on the utility’s meter is likely to be far less than that associated with continuous service. Thus, the revenue stream from this customer would not support the level of costs associated with providing this service. This rate design fails to recognize the actual costs imposed by the standby customer for the service provided.

As stated in its initial comments, NSTAR Electric supports a contract-demand-based rate design for pricing standby service because this rate design results in a fair allocation of costs and benefits. NSTAR Electric would also support the internal-load variation for the same reasons. Because the “as used” rate design does not reflect the responsibility for the costs incurred to provide backup service to their facility, NSTAR Electric does not support the use of this type of rate design in developing standby rates.

C. System Planning

With respect to the role of distributed generation in the provision of reliable, least-cost distribution service, initial comments focused on: (1) how best to identify areas within a distribution system where distributed generation could be incorporated; (2) what procedures should be established to notify interested persons on where distributed generation could likely be

located; and (3) how distributed generation can be given appropriate incentives that reflect the economic value of siting distributed generation at particular locations within a distribution system.

As noted in the Company's initial comments, the determination as to whether the installation of distributed generation will produce a benefit for the system must be viewed with specific regard to the location of the facility on the system. In general, because the costs and benefits of the installation of distributed generation depend upon site-specific circumstances, can change over time and are a function of multiple variables within a distribution system, it would be difficult to develop principles of generic application to govern the incorporation of distributed generation facilities into a distribution company's system planning efforts.

To the extent that distributed generation may have a benefit in relieving congestion, NSTAR Electric notes that, as a result of locational pricing processed through ISO-NE, Inc., distributed generators already receive price signals of where congested areas exist within a system. The locational-pricing framework is specifically designed to provide an incentive for the development of generation and transmission facilities in congested areas.

Where distributed generation may provide a benefit in relieving physical system constraints, NSTAR Electric already considers the location of generation and the installation of such technologies in reviewing and evaluating potential investment alternatives when making determinations as to the most cost-effective way of maintaining reliable service to customers.⁸

The analysis of whether the use of distributed generation in a specific location would provide a benefit to the system depends on a number of factors that must be evaluated on a site-specific basis and are subject to considerable change, given that the Company is continually

⁸ NSTAR Electric recognizes that the nature of system planning has changed because distribution companies no longer build generation resources.

upgrading and extending its system and these changes inevitably have an effect on the distribution system's capabilities, which may eliminate or reduce the need for investment in other areas. Thus, distribution and transmission planning is a dynamic process that does not lend itself to the creation of a static list of potential sites wherein distributed generation facilities could be placed to the benefit of the distribution system.

In addition to system considerations, the ability to avoid investment depends on: (1) the number; (2) type; (3) availability; and (4) size of the distributed generation units that are located on a particular circuit, or are assigned to a particular substation or are relieving a particular transmission line. In general, the installation of several small units is more likely to have a negligible impact on or to defer utility investment than one or two larger units, because there is a level of redundancy that results from the presence of multiple units and there is less reliance on any one unit. Conversely, unless the total size of the distributed generation facilities in a particular area exceeds a threshold, it will not have a material impact on the decision on whether distribution or transmission upgrades or reinforcements can be avoided. Moreover, to have significant value to the distribution system, distributed generation must be reliable and dispatchable. For example, distributed generation units that operate regardless of the availability or accessibility of sun, wind, or other factors beyond human control are more likely to defer utility investment. In addition, the availability of those units (considering planned and unplanned maintenance) is a significant factor in determining how much investment can be deferred by a utility.

Consistent with its obligation to provide least-cost service to customers, the Company would support the use of distributed generation in those areas where system investment could be avoided in an economical and reliable manner. In the Company's experience, however,

distribution-system infrastructure has a longer useful life and greater capacity than distributed generation technologies within the planning context. As a result, distributed generation is likely to assist only in deferring investment for a limited period of time, and therefore, the overall benefit to the system is limited to the time value of money. In addition, for there to be discernible customer benefits of a distributed generation facility in terms of cost avoidance, the facility must be fully integrated into the electric grid and be dispatchable when needed by the system. This requires that appropriate guarantees are provided that the generation will be available to offset the avoided transmission or distribution facilities. Because there is the potential for distributed generation to provide a benefit, it is the Company's long-standing policy to consider distributed generation as an option and to confer with developers about the potential location of distributed generation facilities prior to finalizing decisions about system upgrades, as those opportunities are identified within the system-planning context.

III. CONCLUSION

The Company appreciates the opportunity to respond to the several issues discussed in the initial comments filed in this proceeding. As discussed herein, NSTAR Electric recognizes the benefits of initiating a collaborative process, subject to ongoing review by the Department, to develop uniform interconnection standards for implementation by all electric distribution facilities. Moreover, NSTAR Electric requests that the Department establish policies for the design of standby rates that comport with traditional principles of cost causation. Lastly, NSTAR Electric requests that the Department recognize that issues concerning the use of distributed generation to meet system reliability need to be evaluated within the context of distribution companies' planning activities.